

Claims:

1. An apparatus for continuous casting of metal billets comprising a horizontal casting mould having an inlet end and an outlet end, a feed trough for feeding molten metal to
5 the mould inlet end, a horizontal conveyor for receiving a cast billet from the mould outlet end and a moveable cutting saw operable to move synchronously with the conveyor for cutting a continuous billet into lengths while traveling on said conveyor, wherein the horizontal conveyor comprises at
10 least one resilient continuous V-shaped support positioned between the casting mould and the cutting saw.
2. An apparatus as claimed in claim 1 wherein the continuous V-shaped support comprises an endless belt.
- 15 3. An apparatus as claimed in claim 1 wherein the saw is a flying saw.
4. An apparatus as claimed in claim 3 wherein a further horizontal conveyor comprising at least one resilient V-shaped support, is located downstream from the flying saw.
- 20 5. An apparatus as claimed in claim 1 wherein the V-shaped support comprises a continuous V-shaped belt formed of a resilient material.
6. An apparatus as claimed in claim 1 wherein the V-shaped support comprises a series of resilient V-shaped supports
25 mounted on a continuous metallic belt.
7. An apparatus as claimed in claim 1 wherein the V-shaped support comprises a series of metallic V-shaped supports mounted on a continuous resilient belt.

8. An apparatus as claimed in claim 1 wherein the V-shaped support includes a continuous belt having a continuous slot oriented longitudinally in the bottom face of the belt and adapted to travel on a fixed, low friction support contoured
5 to match the contour of the slot.

9. An apparatus as claimed in claim 2 that includes a drive pulley with grooves for engaging the endless belt.

10. An apparatus as claimed in claim 9 wherein the endless belt is supported by at least one further pulley, with
10 tensioning means between the pulleys.

11. An apparatus as claimed in claim 10 which includes a motor drive connected to said drive pulley.

12. An apparatus as claimed in claim 4 that includes means for synchronizing the speed of the conveyors upstream and
15 downstream of the flying saw.

13. An apparatus for continuous casting of metal billets comprising a horizontal casting mould, having an inlet end and an outlet end, a feed trough for feeding molten metal to the mould inlet end, a horizontal conveyor for receiving a
20 cast billet from the mould outlet end and a moveable cutting saw operable to move synchronously with the conveyor for cutting a continuous billet into lengths while traveling on said conveyor, wherein the conveyor provides a V-shaped support for the billet, said support being in a fixed
25 horizontal and vertical position, and said casting mould is adjustably mounted on a support whereby the mould is adjustable in vertical, horizontal, pitch and yaw directions.

14. An apparatus as claimed in claim 13 which includes at
30 least one roller clamp positioned for applying a downward

pressure on the billet against the V-shaped support during casting and sawing.

15. An apparatus as claimed in claim 13 wherein the mould adjustable mounting is adapted to create a vertical offset
5 whereby gas/lubricant is released from the mould.

16. An apparatus for continuous casting of metal billets comprising a horizontal casting mould, having an inlet end and an outlet end, a feed trough for feeding molten metal to the mould inlet end, a horizontal conveyor for receiving a
10 cast billet from the mould outlet end and a moveable cutting saw operable to move synchronously with the conveyor for cutting a continuous billet into lengths while traveling on said conveyor, wherein the saw is a flying saw has a drive means for advancing the rotating saw through the cast billet
15 and a resistance load means adapted to provide a load counter to the direction of movement of the saw through the billet.

17. An apparatus as claimed in claim 16 wherein the
20 resistance load means comprises a mechanical or gas spring.

18. An apparatus as claimed in claim 17 wherein the flying saw is mounted on a carriage moveable in the direction of travel of the billet and drive means is provided for moving the carriage at a predetermined speed relative to the speed
25 of the conveyor upstream of the flying saw.

19. An apparatus as claimed in claim 18 wherein the resistance load means is adapted to dampen deceleration and acceleration of the rate of travel of the flying saw upon entering and exiting the billet.

20. A method for controlling the cut of a flying saw associated with a continuous casting machine, wherein the casting machine comprises a metal casting mould for casting a metal billet, an upstream billet conveying means between
5 the mould and the saw, said saw being a rotary saw mounted on a frame, and a downstream billet conveying means downstream of the saw, the downstream conveying means moving at a speed synchronized to the speed of the upstream conveying means, said method for controlling the cut
10 comprising the steps of:

(a) moving the saw frame to position the saw at a predetermined position upstream of the position at which the cut is to be made,

(b) accelerating the frame and saw so that they move
15 at the same speed as the upstream conveying means,

(c) rotating the saw and moving it perpendicular to the billet to cut through the billet,

(d) upon completion of the cut, accelerating the downstream conveyor relative to the upstream conveyor,

20 (e) accelerating the frame and saw relative to the upstream conveyor but less than the acceleration of the downstream conveyor,

(f) after the cut faces of the billet have been separated by a predetermined amount, returning the saw to
25 its original upstream position, halting the movement of the frame and returning it to its start position, and re-synchronizing the speed of the downstream conveying means relative to the upstream conveying means.